PUBLIC NOTICE

FEDERAL COMMUNICATIONS COMMISSION
445 12th STREET, S.W.
WASHINGTON, D.C. 20554

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Released: February 26,2003

COMMISSION SEEKS COMMENT ON STAFF STUDY REGARDING ALTERNATIVE CONTRIBUTION METHODOLOGIES

CC Docket Nos. 96-45, 98-171, 90-571, 92-237, 99-200, 95-116, 98-170, NSD File No. L-00-72

Comnicnt **Date: March 31,2003.**
Reply Comment Date: April 18,2003.

In this Public Notice, the Commission seeks comment on a staff study relating to alternative methodologies for calculating contributions to the federal universal service support mcchanisrns. We urge commenters *to* comment on the staff analysis of assessment levels under cach approach and on the assumptions underlying these projections. Commenters are encouraged to provide their own estimates. projections, and data supporting *or* refuting the projections.

In the *Report and Order and Second Further Norice,* the Commission adopted interim measures to maintain the viability of universal service in the near term.[1] In addition to seeking comment on whether to retain a revenue-based system, the Commission invited comment on specific aspects of three connection-based proposals.[2] The Commission first asked for comment on a proposed contribution methodology that would impose a minimum contribution obligation on all interstate telecommunications carriers and a flat charge for each end-user connection depending on the nature or capacity of the connection. Next. the Commission sought comment on a proposal to assess all connections based purely on capacity. Under this proposal, contribution obligations for each switched end-user connection would be shared between access and transport providers. Finally, the Commission sought comment on a proposal Io assess providers of switched connections based on their working telephone numbers.

To facilitate discussion and analysis of the various alternatives discussed in the *Secund* ***Furrher*** *Norice.* Commission staff has developed a working paper that estimates potential assessment levels under the newly modified revenue-based system and three connection-based proposals. The assumptions underlying the study are described in the staff paper. The study.

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[1] *See Federal-State Joint Board on Universal Service, CC* Docket No. 96-45, Report and Order and Second Further Notice of Proposed Rulemaking, FCC 02-329 (rel. December 13.2002) (*Report and* ***Order*** *and Second Further Notice*)

[2] *Id.* at paras. 66-100

and its underlying assumptions were created for the sole purpose of developing a more detailed record addressing these issues in the docket. and do not represent the policies or preferences of the Commission. Commissioners, or the staff.

We seek comment on the study, as well as its underlying assumptions. We specifically ask commenters to analyze the modeled assessment levels, burdens on residential and business customers. and projected industry shares under each approach. To further assist commenters in analyzing the study, the staff spreadsheet that ycncrated the study is available on the Commission's website for downloading at http://www.fcc.gov/wcb/universal service/welcome.html. This spreadsheet will provide access to the formulas utilized in the study and allow conimenters to observe how changes to assumptions impact assessment levels and burdens. We recognize that estimates could differ significantly if different assumptions are utilized. We invite commenters to submit their own data and reasoning supporting or disagreeing with the various projections and assumptions. Comments submitted in response to this Public Notice shall be incorporated into the record for the *Second Further Norice.*

Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 C.F.R. §§ 1.415, 1.419. interested parties may file comments 30 days or fewer from publication in the Federal Register. and reply comments 60 days or fewer froni publication in the Federal Register, Comments may be filed using the Commission's Electronic Comment Filing System (ECFS) or by filing paper copics.'

Comments tiled through the ECFS can be sent as an electronic file via the Internet to <http://www.fcc.gov/e-file/ecfs.html>. Generally, only one copy of an electronic submission must be filed. If multiple docket or rulemaking numbers appear in the caption of this proceeding, however, commenters niust transmit one electronic copy of the comments to each docket or rulemaking number referenced in the caption. In completing the transmittal screen, commenters should include their full name, U.S. Postal Service mailing address, and the applicable docket or rulemaking number. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions for e-mail comments, commenters should send an e-mail to ecfs@fcc.gov, and should include the following words in the body of the message, "get form <your e-mail address>." **A** sample form and directions will he sent in reply.

Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket *or* rulemaking number appears in the caption of this proceeding, commenters must submit two additional copies for each additional docket or rulemaking number. Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S Postal Service mail (although we continue *to* experience delays in receiving U.S. Postal Service mail). 'The Commission's contractor. Vistronix, Inc., will receive hand-delivered or messenger-delivered paper filings for the Commission's Secretary at 236 Massachusetts Avenue, N.E., Suite 110, Washington, D.C. 20002. The filing hours at this location are 8:00 a.m. to 7:00 p.m. **All** hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of before entering the building. Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743. U.S. Postal Service first-class mail, Express Mail, and Priority Mail should be addressed to 445 12th Street, SW, Washington, D.C.

See Electronic Filing of Documents in Rulemaking Proceedings, 63 Fed. Reg. 24,121 (1998)

20554. **All** filings must bc addressed to the Commission's Secretary. Marlene H. Dortch. Office of the Secretary, Federal Communications Commission.

Parties also must send three paper copies of their filing to Sheryl Todd, Telecommunications Access Policy Division, Wireline Competition Bureau, Federal Communications Commission. 445 12th Street S.W., Room 5-B540, Washington. D.C. 20554. In addition, commenters must send diskette copies to the Commission's copy contractor, Qualex International, Portals 11,445 12th Street, S.W., Room CY-B402, Washington, D.C. 20054. This is a permit hut disclose rulemaking proceeding. **Ex** parte presentations are permitted, except during the Sunshine Agenda period, provided that they are disclosed as provided in the Commission's rules.[4]

Action by the Commission on February 12, 2003 by Chairman Powell, and Commissioners Abernathy, Copps. Martin, and Adelstein.

For further information, contact Diane Law-Hsu or Paul Garnett, Telecommunications Access Policy Division: Wireline Competition Bureau, at (202) 418-7400, TTY (202) 418-0484.

[4] *See generally* 47 C.F.R. §§ 1 1202. 1.1203. 1.1203, and 1.1206.

Wireline Competition Bureau Staff Study of Alternative Contribution Methodologies

CC Docket Nos. 9645, 98-171, YO-571, 92-237, 99-200, 95-116, 98-170, NSD File No. LOO-72

PROJECTED ASSESSMENTS UNDER REVENUE-BASED METHODOLOGY	2002	2003	2004	2005	2006	200
Projected contribution factor	0.080	0 093	0.096	0.100	0 106	0.11
Interstate & international contribution base revenues ($ Millions)						
Subscriber line charger	$14,053	$14,750	$14.911	$14.862	$14,804	$14,74
Special access 8 local pnvate line	$5.577	$6,498	$7.565	88.576	$9.192	$9.85
Residential toll (including operator & prepaid card)	$13,429	$12.603	$11.613	$10,587	$9.620	$8,71
Business switched (incl. Operator handled)	$22.911	$19.853	$17,956	$16,606	$15.265	$13,23
Interstate pnvate line	$7,207	$7.303	$7,406	S7.516	17.633	$7.75
International pnvate line	$1,389	$1,469	$1,552	$1,639	$1,728	$1.81
CMRS	811.829	S17.602	$19,163	$20,242	820.643	$20.60
Payphone coin-in-the-box	$37	$35	$33	$32	$30	$2
Total contribution base ($ Millions)	$76,432	$80,113	$80,199	$80,060	P78.917	S76.75
USF program requirements ($ Millions)	$5,849	$6,394	$6.623	$6,861	$7,109	$7.361
Adjustments to reflect under/over-collections	$0	$0	$0	$0	$0	$(
Adjusted universal service funding requirement	$5,849	$6,394	86.623	S6.861	$7,109	$7,36(
Share of contributions by industry segmenl						
IXC	59%	51%	48%	45%	43%	41%
LEC	26%	27%	28%	29%	30%	32%
CMRS	15%	22%	24%	25%	26%	27%
Assessments on households						
Average monthly pass-through charge per household	$2.14	$2.24	52.21	82.27	$2.31	$2.38
Conlnbulion obligation	81.85	$2.16	$2.21	$2.27	$2.31	82.38
Markup in pass-through charges	S0 30	$0 08	n.a	n.a.	n.a.	n.a
Sample contributions per month						
IXC contribution per household	$0.83	$0.63	$0.76	$0.71	$0.67	$0.64
Mobile wireless contribution per residential handsel	$0.45	$0.71	$0.74	$0.75	$0.77	50.79
LEC contribution per pnmary residential phone	$0.43	$0.53	$0.56	$0.59	$0.62	$0.66
Percentage of fund met from residential assessments	39%	41%	42%	42%	42%	42%
ssessments on businesses						
Sample contributions per month						
Business mobile wireless telephony handset	$0.85	$1.32	161.37	$1.40	$1.42	$1.46
One-way paging unit	$0.12	$0.14	$0.15	$0.15	S0.16	$0.17
Two-way paging unit	$0.28	$0.33	$0 34	80.35	80.37	$0 40
Single-line business connection	$0.43	$0.53	$0 56	$0.59	$0.62	$0.66
Centrex connection	$0.56	$0.65	$0.67	$0.70	$0.74	$0.79
Presubscribed mull)-linebusiness trunk	$0.56	S0 65	$0.67	$0.70	$0.74	$0.79
20 exchange service trunks provided via a T1	811.20	$13.01	$13.45	$14 01	$14.80	$15.88
T1 configured as 20 presubscribed exchange service trunks	$11.20	$13.01	$13 45	$14.01	$14.80	$15.88
T1 interstate pnvate line priced at 6700 per month	55607	$65.10	867.31	$70.11	$74.08	$7949
DS3 interstate pnvate line priced at $7,000 per rnonlh	$560.66	$650.99	$673.12	5701.10	$740.79	$794.89
OC3 interstate pnvate line priced at 1617.500 per month	$1,401.65	$1,627.48	$1,682.80	$1,752.75	S1.851.97	$1,987.23
Percentage of fund met from business assessments	61%	59%	58%	58%	58%	58%

e: Starting in 20 2003, contributions based on projected collected revenues: sale harbor = 28.5% lor mobile wireless: no markup on line items. Assumes an average uncollectible rale for interstale revenues = 5 % ADSL revenues included for all penods
Not applicable
ails may not add to totals due to rounding Figures shown are totals lor the year or averages of monthly values for the year. as appropriate.

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PROJECTED ASSESSMENTS UNDER PROPOSAL 1	2002	2003	2004	2005	2006	20
Connection-Based Methodology	Revenue-Based Plan		Connection-Based Plan			
Projected revenue-based factor *	0 080	0.093	0.0100	0.0100	0.0100	0.01(
Projected wnneclion-based factors						
Assessment for residential. single-line business, mobile wireless and payphone connections	n.a.	n.a.	$1.0000	$1.0265	$1.0349	$1.05'
Base charge lor multi-line business connections	n.a	n.a.	$2.6189	$2.5548	$2.6070	$2.69(
Fund requirement ($ Millions)						
USF program requirements	$5,849	$6,394	56.623	$6.861	$7.109	$7,3(
Adjustments to reflect underlover-collections	$0	$0	($37)		($47)	($3
Adjusted universal service funding requirement	$5,849	$6.394	$6,586	$6.799	57.062	$7,33
Contributions based on revenues *	$5,849	$6,944	$80	$76	$71	$6
Contributions based on connections	n.a.	n.a.	$6.506	$6,723	$6.991	17.27
Expected collections based on initial period assessmenl rates and forecast units (used to calculate growth factor) ($ Millions)	n.a.	n.a.	n.a.	$6,549	$6,755	$6.91
Calculation of base charge for mull#-linebusiness connections						
Expecled collections from residential. single-line business. mobile wireless. payphone and pager connections ($ Millions)	n.a.	n.a.	$3.216	$3,447	$3,586	$3.71'
Percentage of funding requirement	n.a.	n.a.	49%	51%	51%	514
Capacity units used for calculating residual base rate (projected collected multi-the connections − forecast units reduced by carrier and USAC uncollectibles)	n.a.	n.a.	104.5	106.7	108.7	109.(
Share of contributions by industry segment						
IXC	59%	51%	23%	22%	22%	22%
LEC	26%	27%	49%	47%	46%	45%
CMRS	15%	22%	28%	30%	31%	31%
Assessments on households						
Average monlhly pass-through charge per household	$2.14	$2.24	$2.17	$2.27	$2.31	$2.34
Contribution obligation	$1.85	$2.16	$2.17	$2.27	$2.31	$2.34
Markup in pass-through charges	$0.30	$0.08	n.a.	n.a.	n.a.	n.a
Sample contnbutions per month						
IXC contribution per household	$0 83	$0.83	$0.03	$0.03	$0.03	S0.03
Mobile wireless contribution per residential handsel	$0 45	$0.71	$1.00	$1.03	$1.03	$1.05
LEC contribution per pnmary residential phone	$0 43	$0.53	$1.00	$1.03	$1.03	S1.05
Percentage of fund met from residential assessments	39%	41%	43%	43%	43%	42%
Assessments on selecled business services						
Sample contnbutions per month						
Business mobile wireless telephony handset	50 85	$1.32	$1.00	$1.03	$1.03	a1.05
One-way pagers	$0.12	$0.14	$0.10	$0.10	$0.10	$0.11
Two-way pagers	$0.28	$0.33	$0.20	$0.21	$0.21	$0.21
Single-line business conneclion	$0.43	$0.53	81.00	$1.03	$1.03	$1.05
Centrex connection	50.56	$0.65	10.29	$0.28	$0.29	$0.30
		$0.65	$2.62	$2.55	$2.61	$2.70
20 exchange service trunks provided via a T1	$11.20	$13.01	$52.38	$51.10	$52.14	$53.93
T1 configured as 20 presubscribed exchange service trunks	$11.20	$13.01	$41.90	$40.88	$41.71	$43.14
T1 interstate private line pnced at $700 per month	$56.07	$65.10	$41.90	$40.88	841.71	843.14
DS3 interstate private line priced at $7,000 per month	$560 66	$650.99	$586.64	$572.28	$583.96	$604.00
OC3 interstate private line priced at $17,500 per month	$1,401.65	$1,627.48	$879.96	$858.42	8875.94	$906.00
Percentage of fund met from business assessments	61%	59%	57%	57%	57%	58%

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PROJECTED ASSESSMENTS UNDER PROPOSAL 2	2002	2003	2004	2005	2006	20
Eonnettion-Based Methodology	Revenue-Based Plan		Connection-Based Plan			
Protected revenue-based factor	0 080	0.093	0.096	0.100	0.106	0.1
Projected connection-based factors						
Assessment for residential, single-line business. mobile wireless and payphone connections	n.a.	n.a.	80.7073	$0.7040	$0.7134	$0.72
Base charge for multi-line business connections	n a	n.a.	$0.7073	$0.7040	$0.7134	$0.72
Fund requirement ($ Millions)						
USF program requirements	s5.843	$6,394	$6,623	$6.861	$7.109	$7,3(
Adjustments lo reflect underlover-collections	$0	$0	$0	$0	($0)	
Adjusted universal service funding requirement	$5.843	$6,334	$6,623	$6.861	$7.109	$7,3(
Contributions based on non-presubscnbed revenues	$5.849	$6.394	$112	$113	5116	$12
Contributions based on connections	n.a	n.a	$6,510	96.748	$6,993	17.24
Expecled collections based on initial penod assessment rates and forecast units (used to Calculate growth lactor)	n.a	n a	n.a	n.a.	n.a	n.
Calculationof base charge for multi-line business connections						
Expected collections from residential. single-line business. mobile wireless. payphone and pager connections	n.a	n.a.	n.a	n.a.	n.a.	n.
Percentage of funding requirement	n.a.	n.a.	n.a	n.a	n.a.	n.
Projected collected capacity units used for calculating base	n.a.	n.a.	724.0	757.3	774.6	791.
Share of contributions by industry segment						
IXC	59%	51%	34%	32%	30%	29%
LEC	26%	27%	23%	22%	21%	20%
CMRS	15%	22%	41%	42%	43%	43%
Assessments on households						
Average monthly pass-through charge per household	$2 14	$2.24	$3.47	$3.60	$3.70	$3.8'
Contribution obligation	51 85	$2.16	$3.47	83.60	$3.70	$3.81
Markup in pass-through charges	50.30	$0 08	n.a.	n.a	n.a.	n.a
Sample contributions per month						
IXC contribution per household with 1 presubscribed line	S0.83	80.83	$0.71	S0.70	$0.71	$0.72
Mobile wireless contribution per residential handset	$0.45	SO 71	51.41	11.41	$1.43	$1.4:
LEC contribution per pnmary residential phone	S0.43	50.53	$0.71	$0.70	$0.71	$0.72
Percentage of fund met from residential assessments	39%	41%	67%	67%	68%	68%
Assessments on selecled business services						
Sample contributions per month						
Busmess mobile wireless lelephony handsel	S0.85	$1.32	$1 41	$1.41	$1.43	$1.45
One-way pagers	$0 12	$0. 14	$0.35	$0.35	$0.36	$0.36
Two-way pagers	SO 28	$0.33	$0.71	$0.70	$0.71	$0.72
Single-line business connection	$0 43	S0 53	$1 41	$1.41	$1.43	$1 45
Centrex connection	$0.56	S0 65	$0.16	S0.16	$0.16	$0.16
Presubscribed multi-line business trunk	SO 56	$0.65	$1.41	51.41	$1.43	$1.45
20 exchange service trunks provided via a T1	$11.20	$13 00	$28.29	S26.16	$28.53	$28.96
T1 configured as 20 presubscribed exchange service trunks	$11.20	$13 00	$22 63	$22.53	$22.83	823.17
T1 interstate pnvate line pnced at S700 per month	556.06	$6505	$22.63	$22.53	$22.83	$23.17
DS3 interstate private line priced at S7.000 per month	5560.59	$65047	$316.89	$315.38	$319.58	6324.38
OC3 internlate pnvate line priced at $17,500 pet month	$1,40148	51.626 18	$475 33	$473.07	$473.37	$486.57
Percentage of fund met from business assessments	61%	59%	33%	33%	32%	32%

e: Assumes status quo for treatment of broadband services: 4 Tiers for Conneclions (multiples = 1, 16,224. and 336); average uncollectible rate lor assessable connections = 4% These projections do not include a reserve fund. which may be needed under some proposals to account for uncollectibles and fluctuations in assessable units. Each assessment for a switched connection divided equally between the access and rranspon providers. Presubscribed switched transport providers assigned connection-based assessments. Non-presubscribed switched lranspon providers assessed on Interstate end-user telecommunications revenues

Not applicable

ails may not add lo totals due to rounding Figures shown are totals lor the year or averages of monthly values for the year. as appropriate

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PROJECTED ASSESSMENTS UNDER PROPOSAL 3 Telephone Number-Based Methodology	2002 Revenue-Based Plan	2003 Revenue-Based Plan	2004 Telephone Number-Based Plan	2005 Telephone Number-Based Plan	2006 Telephone Number-Based Plan	2 Telephone Number-Based Plan
Projected revenue-based factor	0.080	0.093	**0.0100**	0.0100	0.0100	0 01
Protected connection-based factors						
Assessment per phone number lor most switched services	n.a.	n.a.	$0.9910	$0.9959	$1.0070	**$1.02**
Base charge tor non-switched special access and private lines	n a.	n.a.	$0.9910	$0 9959	$1.0070	11.02
Fund requirement ($ Millions)						
USF program requirements	$5 849	$6 394	**$6.623**	$6.861	**$7.109**	$7,3(
Adjustments to reflect under/over-collections	**$0**	**$0**	$0	$0	($0)	(:
Adjusted universal service funding requirement						
Contributions based on revenues	$5 849	$6 **394**	$80	**$76**	$71	$(
Contributions based on assigned numbers	n a	n a	$6,519	$6,763	**$7,052**	$7,3'
Expected collections based on initial period assessment rates and forecast units (used to calculate growth factor)	n a	n a	n.a.	n.a.	n.a.	n
Calculation of base charge lor telephone numbers						
Total numbers used for calculating base **rale (forecast** based on connections reponed in prior months)	n a	n.a	554.1	572.2	587.2	599.
Share of contributions by industry segmenl						
IXC	59%	51%	14%	**14%**	14%	**13%**
LEC	26%	**27%**	58%	**57%**	56%	559
CMRS	15%	**22%**	***20%***	**30%**	31%	**314**
Assessments **on** households						
Average monthly pass-through charge per household	**12 14**	**$2** 24	$2.52	**$2.58**	$2.63	$2.61
Contribution obligation	$1 **85**	$2 16	**$2.52**	12.58	$2.63	$2.61
Markup in pass through charges	$0 30	$0 08	n.a.	n.a.	n.a.	n.a
Sample contributions per month						
IXC contribution per household	$0 83	$0 83	$0.15	$0.15	$0.15	10.14
Mobile wireless contribution per assigned telephone number	$0 45	$0 **71**	$0.99	$1.00	**$1.01**	$1.02
LEC contribution per **assigned** telephone number	$0 **43**	$0 **53**	$0.99	$1.00	**$1.01**	**$1.02**
Percentage of fund met from residential assessments	**39%**	41%	46%	46%	**46%**	45%
ssessments on selected business services						
Sample contributions per month						
Business mobile **wireless** lelephony handset	$0 85	$1 **32**	$0 99	$1.00	**$1.01**	**$1.02**
One way pagers	$0 12	**$0 14**	$0.10	$0 10	$0.10	$0.10
Two-way pagers	$0 28	**$0 33**	$0.20	$0.20	**$0.20**	$0.20
Single-line business connection	$0 43	$0 53	$0.99	**$1.00**	$1.01	**$1.02**
Centrex connection	$0 **56**	$0 65	$0.99	**$1.00**	**$1 01**	**$1.02**
T1 configured as **20** exchange service **trunks**						
Single main number supporting **100** extensions	$1 1 20	$13.01	$0.99	**$1.00**	**$1.01**	**$1.02**
	$11 20	$13 01	$99.10	199.59	$100.70	**$102.37**
T1 interstale pnvate **line** pnced at $700 per month	**$5607**	**$65** *10*	**515.86**	$15.93	616.11	$16.38
DS3 interstate privale line pnced at **$7,000** per monlh	**$560.66**	$650 99	1221.99	$223.08	$225.57	**$229.31**
OC3 interstate private line pnced at $17,500 per month	$1.401.65	$1,627 48	1332.98	**$334.62**	$338.36	**$343.97**
Percentage of fund met from business assessments	61%	59%	54%	**54%**	54%	55%

Assumes status quo for treatment **of** broadband services, 4 Tiers tor *non-switched services (multiples = 1, 16, 224,* and *336),* average uncollectible rale for assessable numbers = **4%** These projections do not include a reserve fund which may be needed under some proposals to account lor uncollectibles and fluctuations in assessable units Filers would be subject to a *minimum* contribution requirement based on interstale revenues

n a Not applicable

Details may not add to totals due to rounding Figures shown are totals for Ihe year or averages of monthly values for the year as appropriate

	2002	2003	2004	2005	2006	2007
KEY QUANTITIES FOR CONNECTION-BASED PLANS						
Households with telephone service (Millions)	103.2	104.4	105.6	1D6.9	108.1	109.4
Selected connections (Millions 01 units except as noted)						
Switched wireline connections						
Residential pnmary lines (excluding Lifeline)	98.0	98.4	98.4	97.4	95.8	93.8
Residential non pnmary lines	17.2	15.5	13.9	12.5	11.3	10.1
ADSL Lines	4.9	6.1	7.5	9.0	9.5	10.0
Wireline units per household subject to assessment	1.16	1 15	1.13	111	1.08	1.04
Percent wireline residential presubscribed lo an IXC *if IXCs* are assessed lor presubscnbed *lines*	93%	99%	98%	96%	94%	*93%*
Single-line business	5.4	5.4	5.4	5.4	5.4	5.
Centrex extensions (excluding sold as T I or greater)	15.7	15.7	15.7	15.7	15.7	15.
Reported multi-line trunks	34.8	344	33.7	29.7	26.3	26.'
Local exchange provided as T1/ISDN FRI service (in voice-grade equivalents)	0.4	0 4	0 4	0.5	0.5	0 !
	7.2	7.2	7.6	9.1	104	10.
Local exchange provided as DS3 service/connections (in voice-grade equivalents)	0.008	0.008	0.013	0 029	0.042	0.04'
	1.7	1.6	2.6	5.7	8.4	8.2
Percent trunks served by T1 6 DS3 *presubscribed* lo an IXC *if IXCs* are *assessed* lor *presubscribed lines*	99%	93%	78%	63%	48%	34%
CMRS connections						
Mobile wireless telephony subscribers	132.2	145.5	158.7	171.3	181.8	189.4
Prepaid	4.4	4.9	5.3	5.7	6.1	6
Residential subscription	84.1	92.6	101.0	109.0	115.7	120
Residential wireless telephony connections per household	0 86	0.93	1.01	1.07	I 13	1
Non-residential subscnption	43.6	48.0	52.4	56.5	60.0	62
One-way paging	16.2	14.6	13.1	11.8	10.6	9
Two-way paging	1.1	1.5	1.9	2.5	3.2	4
Special access and *private* lines						
Provided as T I *or* other Tier 2 capacities	3.5	3.6	3.7	3.8	3.9	4.
Provided as DS3 or other Tier 3 & 4 capacities	0.3	0.3	0.3	0.3	0.3	0.
Total residential wireline and mobile wireless connections	208.6	217.4	226.1	233.7	238.3	240.
Total connections per household	2 02	2.08	2 14	2.15	2.20	2:
Assessment bases before deductions for uncollectibles I 1						
Total nat-rated connections	261 1	274.0	286.9	298.5	306.6	311.1
Total capacity units to be assessed at capacity-based rates	106.0	107.7	110.0	112.2	114.4	115.1
Proposal 2						
Total capacity *units* to be assessed for access	378.8	404.3	439.0	472.8	493.5	516.(
Total capacity units to be assessed tor Iranspon	306 7	316.6	322.8	324.0	321.4	316.4
:Y QUANTITIES FOR NUMBER-BASED PLAN						
Selected projections of assigned telephone numbers						
Proposal 3						
Residential wireline Service (excluding Lifeline)	126.7	125.2	123.9	122.7	121.5	120.4
Mobile wireless telephony numbers	136.7	150.3	163.7	176.6	187.3	195.0
Business local exchange service	194.9	192.8	195.9	200.0	204.2	208.5
Paging	17.3	16.1	15.0	14.3	13.9	13.8
Subscriber toll-free & 900 service	24.8	25.1	25.4	25.7	26.0	26.3
personal electronic fax services	11.8	11 9	12 0	12.2	12.3	12.5
ADSL (number *equivalents* based on Tiers)	4.9	6.1	7.5	9.0	9.5	10.0
Special access & pnvale line (number equivalents based on Tiers)	46.4	47 6	48.9	50.3	51.8	53.3
Assigned and imputed residential phone numbers per household	2 39	2 45	2 51	2 56	2 58	2 59
Local exchange and wireless services	2 11	2 16	2 21	2.25	2.28	2.29
Personal 800 personal lax numbers	0 23	0 23	0 23	0 23	0.23	0 23
ADSL (number equivalents based on Tiers)	0 04	0 05	0 06	0 07	0 07	0 06

ires shown are totals for the year or averages of monthly values lor the year, as appropriate

Assumptions for Projected Contributions Under the Modified Revenue-Based and Alternative Methodologies

This staff study presents projections of funding factors under the newly modified revenue-based contributionmethodology and projections of rates under three proposals referenced in the *Second Further Norice.* In developing the projections, this staff study assumes the three alternative proposals will be implemented on January *1*, **2004.** The projeciions contained herein, and the assumptions used to develop these projections, do not represent policy judgments or forecasts by the Commission, individual Commissioners or Commission staff, but rather represent a discussion document to facilitate a comparison of different assessment systems.

In developing projections for the newly modified revenue-based methodology and the three proposals, staff started with estimates for several categories of switched lines, CMRS connections, and private lines for December 2001. Growth rates for specific types of lines were based on historical trends in reported lines and revenues, current economic conditions, and an assessment of technological trends. **A** series of factors was developed to translate projected lines into projected interstate revenues. Staff translated lines into revenues, rather than directly projecting revenues, to ensure that the projections under the revenue-based system were based on the same assumptions as the three proposals. In developing the annual figures shown in this study, staff made month-by-month projections of lines. revenues, and assigned relephone numbers. These values were aggregated into quanerly and annual values to mirror the actual mechanics ofthe current system and the three proposals. In addition, projected contribution base revenues for the first three quarters were compared with detailed FCC Form 499-Q summaries in order to calibrate growth rates and other assumptions.

Capacity Tiers

In the *Secund Further Norice.* the Commission sought comment on several proposals that **would** assess contributions on the number and capacity of carriers' connections *to* interstate networks. For purposes of developing the projections contained in this study, staff utilized the capacity tiers referenced in the *Second **Furrher Norice,*** as follows:

Tier	Capacity	Assessment x Tier 1 Rate
Tier 1	Up to 725 Kbps	1
Tier 2	726 Kbps - 5 Mbps	16
Tier 3	5.01 Mbps - 90 Mbps	224
Tier 4	Greater than 90 **Mbps**	336.[5]

Initial Value of Lines for December 2001

Switched services: The analysis of switched services starts with an estimate of 196.1 million switched lines. This is based on the total end-user lines reponed on the FCC Form 477, increased by *2* percent to allow for small carriers that are not required to file. *This* amount **was** divided between residential and business categories based on USF loop count information. Form

[5] *Second Further Notice* at para 81

477 data, **ARMIS** data. Local exchange carrier Tariff Review Plan (TRP) filings, United States Census Bureau estimates of the number of households with telephone service, and **data** on business establishments and employment. For example, while the largest local exchange carriers (LECs) report the number of single-line business lines in their ARMIS filings, non-filing smaller rural carriers likely have a greater fraction of single-line business lines relative to their switched lines overall. Staff subtracted 127.1 million residential and single-line business lines from **the** total (196.1 million) to arrive at 69.0 million multiline business lines. The staff estimate of 127.1 million residential and single line business lines for December 2001 is based on three figures: 106.7 million primary residential and single-line business lines for price cap and **NECA** carriers;[6] 18.0 million non-primary residential lines for price cap carriers;[7] and 2.4 million CLEC facilities-based residential and single-line business lines.[8]

Of the 127.1 million residential and single-line business lines, staff estimates that 5.4 million are single-line business lines based on the number of business establishments in the United States with 0 to 4 employees, plus half the number with **5** to 9 employees. The estimate of primary residential lines, 103.7 million (127.1 – 5.4 – 18.0 secondary lines), was based on figures for 1999 and 2000 reponed in Table 1.3 of *Trends in* ***Telephone Service*** and is slightly higher than households with telephone service to account for second lines for non-price cap LECs, and second homes. Of these, 6.3 million were pari of the Federal Lifeline program.

Payphone lines were taken from Table 8.5 of *Trends in Telephone Service* and subtracted from 69.0 million multiline business lines. ISDN and Cenrrex lines were based on ARMIS counts and TRP information. Business establishment data was used to estimate the portion of the remaining fines that are physically served by trunk, TI, and DS3 facilities. For example, by assuming that slightly less than half of establishments with 500 or more employees were served by a DS3, staff estimated that 17.1 million of the 69.0 million multiline business lines were provided over DS3 facilities. Assuming an average loading of 200 local exchange channels per DS3, staff estimated that carriers used 86,000 DS3 lines to provide local exchange service. Similarly, staff estimated that almost 950 TI lines were used to serve 27.4 million business lines,

Most lines physically served by a TI or DS3 facility are currently sold as ordinary business trunks. Staffassumed that in January 2004. only 10 percent of such lines would be sold as higher capacity lines and therefore billed as higher Tier services.[9] Given the proposed multiples, the assessments for some customers would not change. or might even go up, if their services were priced as TI or DS3 service. However. for other customers, assessments would decrease if services were priced as higher capacity services. Staff projections assume that over time, half of

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[6] FCC, Wireline Competition Bureau. Industry Analysis and Technology Division. Trends in Telephone Service (May 2002) (***Trends in Telephone*** *Service*) at Table 1.3

[7] *Id.* at Table 1.3.

[8] This was estimated as 40% of the 6.1 million total lines reponed in the FCC, Wireline Competition Bureau, Industry Analysis and Technology Division. Local Telephone Competition: Status as of December 31, 2001, July 2002 ai Table 3.

[9] ***See*** Letter from John Nakahaia. Coalition for Sustainable Universal Service to Marlene Donch. Federal Communications Commission. filed Sept. 26. 2002 (*CoSUS Sept 26 Ex Parte*)

lines provisioned as a higher capacity line (TI or DS3) will be billed as a higher Tier connection, which would reduce the assessments associated with those connections.

Mobile telephony: Staff starts with 126.1 million units based on Number Resource Utilization and Forecasting (NRUF) data. This value is less than the number reponed by the Cellular Telecommunications and Internet Association (CTIA) and estimated in the Seventh Annual CMRS Competition Report, but more than the amount reponed by large wireless carriers on the Form 477 filings. The number of paging units also *is* based on NRUF data. Staff analyzed TNS Tclecoms Bill Harvesting® data regarding household usage of wireless services to estimate that 67.0 percent of Cellular and Broadband PCS handsets are provided to residential customers.[10]

Business special access and private lines including high-capacity lines: Less data on non-switched high capacity lines sold to businesses is reponed to the Commission. Price cap LECs repon the number of voice equivalent special access lines. However, it is unknown how many of these are actually sold as TI and DS3 facilities. Camers also report high capacity lines for non-switched services on Form 477 filings. Price cap LECs also repon high capacity lines in ARMIS, but most of these are facilities provided to interexchange carriers (IXCs), not to end-user customers. The ARMIS repons show a total of 2.0 million TI connections for December 2001 including both switched and non-switched lines. Based on these diverse sources, staff assumed that for December 31. 2001, carriers would have reported 1.3 million Tier 1 connections, 1.65 million Tier *2* connections, .13 million Jier 3 connections, *and* 6 thousand Jier 4 connections. These amounts are consistent with Coalition for Sustainable Universal Service (CoSUS) estimates.[11] International private lines are tracked separately, and removed from these totals when projecting assessable connections.

Additional assumptions were employed lo divide private lines between local and toll. Because local and toll revenues are reponed separately in Form 499-A filings, staff developed different trend growth rates for these services.

Because the Commission has concluded in the wireline broadband lntemet access proceeding that telecommunications carriers that provide broadband services lo affiliated or unaffiliated ISPs or end users must continue to make universal service contributions in the same manner as required today,[12] pending a final Commission decision regarding the status of wireline broadband Internet access, staff assumed that ADSL lines and revenues would be assessed under all proposals. Staff starts with 3.95 million ADSL lines as of December 2001 and applies a

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[10] TNS Tclecoms provides syndicated telecommunications market information products to the telecommunications industry. TNS Tclecoms collects responses Φ its ReQuest® consumer survey from over 120.000 households each year and. through Bill Harvesting®, 32.000 ofthosc households provide their complete set of telecommunications bills, promotional bill inserts end direct mail communications.

[11] *See CoSUS Sept* 26. *2002 Ex Porie*

[12] *See Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, Universal Service Obligations of Broadband Providers*, CC Docket No. 02-33, Notice ofProposed Rulemaking, 17 FCC Rcd 3019. 3053, para. 73 *(2002)*.

growth rate to ensure that ADSL lines as of June 2002 match those reponed in the most recent High-Speed Services for Internet Access Report.[13]

Kev Growth Assumptions

As stated above, the following assumptions do not represent either Commission policy or forecasts. In general, conservative assumptions were chosen. The same growth assumptions drive the revenue, connection. and telephone number projections contained in this staff study. Thus, what is presented is one possible scenario. Note that assumptions that reduce the number of lines will reduce interstate revenues, conneclions, and assigned telephone numbers. The overall results of the analysis are relatively unaffected by changes in particular assumptions.

Switched services: Households with telephone service grow with household formation. Lifeline connections grow at 4.6 percent per year. Initially, 1.5 percent of households are assumed to have mobile wireless service but not wireline or fixed wireless service. This percentage grows to 4.5 percent over lime, and accounts for some reduction in primary residential lines over time. Staff assumes that non-primary lines will decline by 10 percent per year as customers continue to substitute mobile wireless phones, ADSL, and cable modem service for second lines. Residential primary wireline lines also decline slightly over time because staff assumes that some customers will be able to obtain voice services via broadband Internet access and will discontinue local wireline service. For residential service, staff assumes that 8 percent of primary lines will be served in this manner by the end of 2007. Similarly, staff assumes that 15 percent of business local exchange service will be provided in this manner. Staff does not yet h o w if such service would be technologically or economically feasible. As explained above, this represents a conservative assumption and reduces both conmbution base revenues and assessable lines in 2006 and 2007. and is incorporated primarily to test the robustness of the proposed methodologies.

Staffassumes that single-line business lines will remain constant, ISDN lines will decline by I percent per year, and Centrex lines will increase by 1 percent per year, based on data reponed for rhe past three years. Staffassumes that payphone lines will continue to decline sharply, with ILEC lines declining by 15 percent per year and independent payphone company lines declining by 2 percent per year. Staff assumes that individual trunk multi-line business connections will increase by 2 percent per year. Staff assumes that multi-line business connections provided via TI and DS3 connections will decline by 4.5 percent in 2002 and only resume growing in the end of 2003. Starting in 2005, staffassumes that the growth rate for lines served by TI facilities will continue at 5 percent per year and by DS3 facilities at 3 percent per year. Taken together, the projected number of business local exchange lines grows by about 1.6 percent per year starting at the end of 2003. This is fairly conservative relative to historical rates of business line increases, and if true, would reflect the market reaching saturation and only growing with increased employment.

[13] FCC. Industry Analysis and Technology Division. High Speed Services for Internet Access Report (December 2002) at Table 1.

Mobile Service: Some industry sources havc been projecting that the mobile wireless telephony industry will serve 200 million subscribers by 2006 or 2007.[14] More recently, some analysts project growth rates falling below 8 percent per year in 2003. The Cellular Telecommunications and Internet Association has reponed growth in wireless subscribership of 4.8 percent for the first six months of 2002 and growth of approximately 14 percent from July 2001 through June 2002.[15] Form 477 data shows growth has tailed off. although it is still around an annual rate of 10 percent. The conservative projection of the staff is that mobile wireless lines will grow by 11 percent this year, and then *drop* off as the market approaches saturation. This trend line reaches 192 million units in early 2008.

Consistent with industry sources, staff projects further declines in the number of paging units as customers substitute mobile wireless phones for pagers.[16] The projection shows fewer than 10 million one-way units in 2007. However, staff projects that the number of advanced two-way pagers will increase from about 1 million units today to about 4 million units in 2007.

Special Access and Private Line: Staff compared Form 499-A filings in 2001 to revenue repons published in previous *fiends in Telephone Service* Repons. Staff notes that camers have reponed sharply increased end-user revenues for special access and private lines associated with both local and toll services. Generally, staff assumes that the highest capacity lines are growing the fastest. The assumed growth rates average about 0 percent for Tier 1 connections, 2.3 percent per year for Tier 2 connections, and 3.4 percent per year for Tier 3 connections. The growth rate for Tier 4 lines starts at 15.7 percent per year and declines to 10.7 percent in 2007. Staff notes that these high growth rates are applied to the small number of lines that fit in that category. International private line circuits are assumed to grow by 5 percent per year, based on camer Section 43.61 repons for recent years.

Staff assumes that one in four households will have high-speed Internet access by the end of 2007. This is consistent with industry projections.[17] Although others in the industry may predict higher penetration rates,[18] in an abundance of caution, staff assumed more conservative growth levels on the lower end of the range predicted by industry. Staff assumes that the fastest growth will occur in the early years. Of the high-speed connections projected for 2007, the study

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[14] *See, e.g.*, Letter from W. Scott Randolph, Venzon Communications, to Marlene H. Donch, Federal Communications Commission (filed Sept. 5, 2002) (*Verizon* Sepr *5, 2002 Ex* Parre). Raymond James & Associates, Inc., Equity Research, *Telecommunications Services Industry Brief* - Lowering *Estimates for 2001 U.S.* Wireless *Subscriber* Adds. *No* Change *to* 2002, Exhibit 2 (rel. Jan. 8, 2002).

[15] See Cellular Telecommunications and Internet Association. *Wireless Industry: Defying Economic* Trends. Press Release, Oct. 30, 2002, available at http://www wow.com/news/press/body.cfm?record_id=1172; see *also* UBS Warburg. Global Equity Research, *Wireless* Service *Model Book. Fourth Quarter 2002*, PI 3 (rel. Nov. 8, 2002).

[16] *See. e* g.. *Verizon Sept. 5, 2002 Ex* Porre

[17] *See. e.g* . Mike Volpi. Cisco Systems, Inc., *Broadband*. slide 3. available at http //newsroom cisco com/dlls/6368_09_2002_Volpi pdf (citing Probe Research. Inc)

[18] *See* Morgan Stanley. Global Equity Research. *Internet Access: The Global Race for* Broodbond. at Exhibit 2 (rel Oct. 25, 2002)

assumes that 10.3 million will be ADSL lines, based on the assumption that the ADSL share of the residential highspeed Internet market will remain largely unchanged from today.

Translating Connections to Interstate Revenues

Local Switched Service: Switched revenues for local exchange service are based on subscriber line charges multiplied by lines. Current subscriber line charge averages from the ***Trends in Telephone Service*** were increased to reflect increases in SLC caps currently scheduled in the Commission's access rules.[19]

Mobile: For wireless telephony, staff assumes that carriers bill approximately **$35** per residential subscriber per month and $65 per business subscriber. This translates to **$45** on average and is consistent with the average monthly wireless bill reported in ***Trends in Telephone Service,*** Table 12.3. Staff assumes that these amounts will not change over time. However, staff also assumes that these revcnues reflect growing minutes, with an increasing share of minutes associated with information services. By the end of 2007, staff assumes that 20 percent of mobile wireless lelephony revenues will be excluded before carriers either apply the 28.5 percent mobile wireless safe harbor or calculate their actual interstate revenues.

One-way pagers are assumed to generate **69.50** in revenues per month. Two-way pagers are assumed to generate $22.00 per month. Staff assumes that paging systems will continue to report 16 percent of paging revenues as interstate, reflecting the fact that some nationwide paging systems repon 100 percent of revenues as interstate. These figures, combined with the estimates *of* pagers in 2001, comport with revenues reponed by paging companies in 2001 on Form 499-A.

Special Access and Private Line: Jt is difficult to generalize local or loll prices given the diversity and complexity of offerings. In order to conven projected lines into interstate revenues, staff fist translated local and toll line projections into "pricing units", and then developed revenue per pricing unit factors. Pricing units were calculated as 1 per Tier 1 connection, 10 per Tier **2** connection and 200 per Tier 3 and Tier **4** connection. Revenue data was taken from 2001 Form 499-A filings and Section 43.61 traffic reports. The resulting pricing factors were **$22** of interstate revenue per month for local and special access private lines, $69 per month for interstate private lines and $488 per month ***for*** international private lines. Over time, staff assumes that the local pricing factor would increase by 3 percent per year, roughly the rate of inflation. Interstate pricing factors were assumed to decline by 4 percent per year and international pricing factors were assumed to decline by ***5*** percent per year. The net effect of these assumptions. combined with the growth assumptions, is that projected interstate toll private line revenues grow by 7 percent from 2002 to 2007, while international private line revenues grow by 30 percent.

Staff assumes that camers will repon approximately $40 of interstate revenue for each ADSL line, with this amount rising slightly as carriers deploy higher speed services. This figure is consistent with revcnues reponed on Form 499-A filings. *ADSL* revenues are reported together

[19] *See* Cost Review Proceeding for Residential **and** Single-Line Business Subscriber Line Charge (SLC) Caps, CC Docket Nos. 96-262, 94-1, Order, 17 FCC **Rrd** 10868 (2002)

with local private line and special access revenues. This study projects the combined interstate revcnues for ADSL services rising 77 percent from 2002 to 2007.

Switched Toll Service: Staff projects that switched toll services will make up almost half of universal service contribution base revenues in 2002. Staff projects that this will decline to about 35 percent in 2007. The largest portion of switched toll revenues arises from direct dial and toll free calls. Prepaid card revenues, however, are initially pegged at $1.0 billion in December 2001 and are assumed to decline by 5 percent per year. This reflects both drops in prices and the increasing share of minutes handled by wireless telephones. Operator service revenues initially are pegged at $4.7 billion in December 2001. Half of these revenues are assumed to arise from calling card services (of which 10 percent are imputed as residential) and half are assumed to arise from collect calling (of which 80 percent is assumed to be residential). Additionally, staff assumes that half of residential operator revenues are associated with calls that appear in the TNS Telecoms Bill Harvesting® data and which therefore are counted in with household toll estimates. All operator revenues are assumed to decline by 5 percent per year.

According to *Trends in Telephone Service,* Table 15.2, households averaged 55 minutes of interstate calling in 2001 (preliminary). Based on TNS Bill Harvesting@ data used to develop the estimates in *Trends,* staff assumes that households pcid an average of $.17 per minute, including plan charges and charges from some collect calls. Staff assumes that minutes will decline by 9.1 percent per year, based on the 2001 data and estimates for previous years published in *Trends in Telephone Service* Reports. Toll prices per minute are assumed to decline by 10 percent per Year as of January 2002, by 7.5 percent per year as of January 2003, and by 5 percent per year as of January 2004. Rates remain constant afier January 2005. Monthly rates are interpolated from these assumptions.

Staffassumes that business switched toll revenues will decline from approximately $27 per local exchange line per month in 2002 to about $17 in 2007.

Interstate coin revenue per payphone was estimated using Form 499-A data

As noted above. interstate revenue projections for the first three quaners of2002 were compared with preliminary revenue figures from May I. 2002, August 1, 2002 and November 1, 2002 Form 499-Q filings. The projections track reasonably well. Over the three quarters, filers reponed a total of 0.4% more in contribution base revenues than projected.

Translating Access Connections *to* Transport *Connections*

Under Proposal I, carriers would be assessed based on the connections they provide to end users. Thus, lines equate to access connections.

Proposal 2 assumes lines equal access connections and adds a transport assessment for presubscribed switched access connections. For wireline exchange access connections, the transport connection would he assessed to the presubscribed interexchange carrier. However, if a switched access line is not presubscribed. then no assessment would apply to the transport portion of the connection. Non-presubscribed providers of switched interstate

telecommunications services would be assessed on a revenue basis. **All** mobile wireless connections are treated as presubscnbed to the underlying wireless camer. Similarly, camers providing rwo-way paging units would also be assessed both an access and a transport connection for each unit.

Staff assumes that all payphone and Cenrrex connections will be presubscnbed to an interexchange camer. Staff assumes that 99 percent of other wireline local exchange customers will be presubscnbed when Proposal *2* would be implemented. After that point in time, staff assumes that an additional 4 percent of residential primary, single-line business, ISDN BRI, and ordinary business trunks will convert to no-PIC status. Under Proposal **2,** if such customers utilize dial around or other casual calling services, the service providers will be subject to revenue-based USF assessments. Staff assumes that 30 percent of non-primary lines will convert to no-PIC status.

Staff assumes that large multi-line business customcrs will be able to configure their telephone systems to route outgoing toll traffic either to a limited number of presubscribed switched lines, or io dedicated access lines. Accordingly, staff assumes that three fourths of switched services provided over T1 or DS3 facilities ultimately will conven to no-PIC status. This conversion would nor increase the amount of dial around or other casual calling traffic, since the traffic would either be routed through remaining presubscribed lines or through dedicated circuits.

Translating **Access** Connections **to** Assigned **Telephone Numbers**

Initial Values: The Commission collects fairly detailed information on assigned telephone numbers on the FCC Form 502 Numbering Resource Utilization/Forecast filings. Carriers reponed having 482.9 million assigned telephone numbers as of December 2001. For wireline numbers, staff assumed that a single assiped telephone number was associated with **each** Lifeline, single- line business, payphone, and Centrex line. Because additional phone numbers are assigned to residential lines for distinctive ring services, staff assumed that 1.1 telephone numbers were assigned for each residential line, other than Lifeline service lines.

Staff assumed that one assigned telephone number was associated with each pager as of December 2001. To take into account telephone numbers assigned to expired prepaid service accounts, staff assumed that 1.02 assigned relephone numbers were associated with each mobile wireless handset as of December 2001. In addition, staff assumed that 11.6 million telephone numbers were associated with personal electronic fax type services.

Two business customers with the same number of trunks and the same number of telephones would require dramatically different quantities of assigned telephone numbers depending on whether they utilize a single published telephone number and have internally assigned extension numbers or whether they employ direct Inward dialing for each telephone. For example, two customers may each have 20 business trunks that terminate at a *PBX* that supports 100 company telephones. The first might have a single assigned telephone number. The second might reserve a block of 200 telephone numbers and ai any given time have 100 of these numbers in use. In the latter example, all 200 numbers would be reponed as assigned numbers on the FCC Form 502. By subtracting estimates for numbers associated with non-multi-line business lines from

reponed totals, staff calculated that LECs provide 3.98 numbers per business trunk. The study assumes that this value will not decline over time.

Proiected Growth: Staff generated future period number counts by applying assigned numbers per connection factors (*e.g.*, 1.1 residential numbers per line) times the estimated line counts. Thus, changes in the projened number of connections account for most of the changes in the quantity of assigned numbers. Although staff assumes that residential primary lines will decline slightly over time due to migration to Internet voice services, staff assumed that such customers will continue lo use telephone numbers.

Some assigned numbers, such as 500, 900, personal electronic fax, and subscriber toll- free numbers, are not directly associated with the number of connections. Subscriber 800 and similar toll- free numbers grew by 1.2 percent from December 2000 to December 2001.[20] Staff applied the same growth rate to 500, 900, and personal electronic fax numbers. Staff assumed that the usage of telephone numbers would not be affected by a telephone number-based charge and that the quantity of 500, 900, personal electronic fax, and subscriber toll-free numbers will increase by 1.2 percent per year.

Proposal 3 includes assessments for private line services that normally do not have associated telephone numbers. Under this proposal, assessments are based on the charge per number times the multiplier for the tier associated with the capacity. The same number and capacity of special access and pnvate lines and tier structure are used for this proposal as for the connection-based proposals.

***Projecting* Factors**

Quarterly fund requirements: Universal service program requirements were projected by quaner. Schools and libraries funding is projected at capped rates. Some increases in the High Cost fund arise from scheduled MAG plan increases. Other increases are due to projected growth in the size of high-cost support mechanisms resulting from line growth and inflation (inflation estimated to be approximately 2 percent per year). Low income payments go up as the number of Lifeline connections increases and also as primary line subscriber line charges increase.

Calculation of revenue-based factors: Through the first quaner of 2003, revenue factors are calculated as they are today. The contribution base from two quarters prior, less a 1 percent allowance for Universal Service Administrative Company (USAC) uncollectibles, is divided into the projected funding requirement. The values shown in the study are annual averages of quanerly rates. Starting with the second quarter of 2003, calculations are based on projected revenues for the quarter, less USF assessments (to eliminate circularity) and less uncollectibles. For this purpose, staff assumed that carriers will project revenues in each quarter equal to the amounts staff projects based on connections. Staff assumes that 5 percent of contribution base revenues will be reponed as uncollectible. This assumption is higher than the 4 percent uncollectible rate that staff uses for connection and number based assessments. because toll

[20] *See Trends in Telephone Service* at Table 19.2.

services, which make up a greater fraction of the revenue assessment base, have higher uncollectible rates than do local exchange services.

Calculation of connectionbased assessments under Proposal 1: Initial rates for residential, mobile, single-line business. paging, and payphone connections would be adopted by the Commission. The base rate for multi-line business connections for each quarter in 2004 would be set by first projecting collections for residential, mobile, single-line business, paging and payphone connections using the initial period rates, and then dividing the remaining USF requirement by the projected number of multi-line business assessment units. The assessment units would be equal to the projected number of connections multiplied by the Tier multiples.

In using connection projections to calculate the multi-line base connection charge, staff makes four additional assumptions. First. staff assumes that USAC's uncollectible rate will remain at 1 percent. Second, staff used Form 499-A data to estimate minimum contributions that would result if filers had to contribute a minimum of 1 percent of total interstate and international revenues." Based on 2001 Form 499 data, the staff estimated that approximately 750 carriers would havc had to contribute a total ofapproximately $100 million in minimum contributions under a connection-based or number-based methodology in 2001. This amount would decline over time in proponion to changes in toll revenues. The staff study projects a total of $80 million in minimum contributions for 2004.

Third, staff assumes that carriers will, on average, report that 4 percent of their interstate end user revenues are uncollectible. Accordingly, projected connections are reduced by this percentage. .According to ARMIS repons, price cap LECs currently repon less than 2 percent of revenues as uncollectible. Staff assumes that wireless and toll camers have higher uncollectible rates but for modeling purposes uses the single combined rate.

The fourth assumption involves monthto-month variation in the amounts of connections that will be reponed. In order to establish the base rate for multi-line business connections each quaner, staff must project the number of connections subject to charges set annually for each quaner. For these purposes, staff projects connections based on a weighted average of the prior reponed connections. Since projected connections grow in the model, on average carriers will report more connections during the quaner than are forecast. These differences may result in a small amount of over-collection, which would reduce the amounts collected in the following quarter.

.Although it is not built into staff projections, it is likely that reported and projected connections will differ. In order to simulate these differences, staff assumed that the difference between projected and reponed connections would have a standard deviation of 3 percent. The 3 percent standard deviation was used in a Monte Carlo simulation to confirm that using forecasted connections produces reasonably stable multi-line business base rate charges. Nevertheless, a reserve fund may be required to eliminate potential funding shortfalls. Although a reserve fund is not built into staff projections, the Monte Carlo simulation confirmed thar a one-month *reserve*

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[21] *See Second Further Notice* at para. 78

should be adequate in 2004, and that it might he possible to reduce the reserve significantly in subsequent years.

In December 2004, the Commission would develop a growth factor in order to reset rates for residential, mobile, single-line business, paging. and payphone connections for 2005. The growth factor would be calculated by comparing projected collected universal service contributions for the upcoming calendar year based on the initial year (2004) assessment rates with the projected universal service revenue requirement for the upcoming calendar year. The projected collected universal service contributions for the upcoming year would be calculated by multiplying the total projected number of each category of connection for the upcoming year times the assessment rates for each of these categories for 2004. For purposes of this calculation, the multi-line business assessment rate would be calculated by taking a simple average ofthe assessment rates for each quaner of the previous year. If the projected universal service revenue requirement differs from projected collections at initial year rates, the Commission would divide the projected revenue requirement by the projected contributions lo arrive at the **growth** factor. That growth factor for the calendar year would be applied to assessment rates for residential, single-line business, payphone. mobile wireless, and pager connections. Assessment rates for multi-line business connections for each quaner would then be calculated by taking the residual funding requirement and dividing that number by the total multi-line business capacity units projected for the upcoming quaner.

Calculation of connectionbased assessments under Proposal **2:** The calculations under Proposal *2* are considerably simpler than for Proposal 1, because all connections would be assessed based on capacity. Thus, total connections forecast for the quaner would be divided by **total** requirement to yield a single base rate. Because all connectionbased assessments would be adjusted quanerly, no annual forecasts would be needed and no services would be calculated as a residual. This proposal also employs the I percent assumption for USAC uncollectibles and *4* percent assumption for contributor uncollectibles. The 3 percent variance from trend was used in some simulation runs. Under this proposal, interexchange providers are assessed on a revenue basis for non-presubscribed services.

Calculation of number-hased assessments under Proposal 3: The calculations under Proposal **3** are similar to the calculations made for Proposal 2. Thus, total assigned numbers forecast for the quaner would be divided by total requirement to yield a single base rate. For this purpose, the quantity of telephone numbers for paging services was discounted using the same multiples as were used in the connection-based plans. The quantity of numbers includes projected special access and private lines times the capacity tiers. Because all connectionbased assessments would be adjusted quanerly, no annual forecasts would be needed and no services would be calculated as a residual. This proposal also employs the I percent assumption for USAC uncollectibles and 4 percent assumption for contributor uncollectibles. The 3 percent variance from trend was used in some simulation runs. This prnposal incorporates the same minimum contribution requirement described in Proposal I

Projecting Industry Segment Contribution Shares

For purposes of simplicity, to determine shares of contributions by industry segment, staff assumed switched toll revenues will be earned by IXCs, local revenues by LECs, and wireless revcnues by CMRS carriers. For example, if an IXC provides local service, its local service revenues would be counted as LEC revenues. Similarly, if a LEC provides long distance, its long distance revenues would be counted as IXC revenues. Under the three proposals, staff assumed residential and single-line business connections and local telephone numbers will be provided by LECs, wireless conneclions ana telephone numbers by CMRS providers, and subscriber toll free telephone numbers by IXCs. Because a significant amount of special access and private line revenues are reponed as wholesale revenues, staff assumed that ninety percent of interstate special access connections will be provided by IXCs and the remainder by LECs. Staff assumed that all interstate private lines will be provided by IXCs. Finally, staff assumed that transport charges for wireline connections under Proposal 2 will be paid by IXCs.